

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

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To:  
OYEN WIGGS GREEN & MUTALA LLP  
The Station  
480 - 601 West Cordova Street  
VANCOUVER, British Columbia  
Canada, V6B 1G1

MAY 12 2005

**OYEN WIGGS GREEN & MUTALA** WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing 10 May 2005 (10-05-2005)  
(day/month/year)

Applicant's or agent's file reference  
S779 0016 / P GNL/TAR

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
**PCT/CA2004/002198**

International filing date (day/month/year)  
24 December 2004 (24-12-2004)

Priority date (day/month/year)  
15 April 2004 (15-04-2004)

International Patent Classification (IPC) or both national classification and IPC  
IPC<sup>7</sup> G06T-5/00

Applicant  
**THE UNIVERSITY OF BRITISH COLUMBIA ET AL**

1. This opinion contains indications relating to the following items :

- |   |              |   |
|---|--------------|---|
| <input checked="" type="checkbox"/> [ X ] | Box No. I    | Basis of the opinion  |
| <input type="checkbox"/> [ ]              | Box No. II   | Priority  |
| <input type="checkbox"/> [ ]              | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/> [ ]              | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> [ X ] | Box No. V    | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement. |
| <input type="checkbox"/> [ ]              | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/> [ ]              | Box No. VII  | Certain defects in the international application  |
| <input checked="" type="checkbox"/> [ X ] | Box No. VIII | Certain observations on the international application   |

x Reply to written opinion of ISA  
filed for 15 Feb 05

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/CA  
Canadian Intellectual Property Office  
Place du Portage I, C114 - 1st Floor, Box PCT  
50 Victoria Street  
Gatineau, Quebec K1A 0C9  
Facsimile No.: 001(819)953-2476

Authorized officer  
  
**Gilbert Jean (819) 934-5148**

International application No.  
PCT/CA2004/002198

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
  
[ ] This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of :
  - a. type of material
    - [ ] a sequence listing
    - [ ] table(s) related to the sequence listing
  - b. format of material
    - [ ] in written format
    - [ ] in computer readable form
  - c. time of filing/furnishing
    - [ ] contained in the international application as filed.
    - [ ] filed together with the international application in computer readable form.
    - [ ] furnished subsequently to this Authority for the purposes of search.
3. [ ] In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statement that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments :

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims 1 to 34	YES
	Claims NONE	NO
Inventive step (IS)	Claims 1 to 34	YES
	Claims NONE	NO
Industrial applicability (IA)	Claims 1 to 34	YES
	Claims NONE	NO

2. Citations and explanations :

Reference is made to the following documents:

D1 = US6038576 (DIGITAL EQUIPMENT CORPORATION) 14 March 2000 (14-03-2000)

D2 = US6292168 (XEROX CORPORATION) 18 September 2001 (18-09-2001)

D3 = US6625324 (MUSTEK SYSTEM INC.) 23 September 2003 (23-09-2003)

D1 discloses a method for bit-depth increasing digital data represented by a first number or original bits which are sequentially ordered beginning with a start bit and ending with an end bit. To bit-depth increase the data, the original bits are replicated in the sequential order starting with the start bit to form replication bits.

D2 discloses a plurality of pixels from a first bit depth to a second bit depth which includes receiving an input scanline of an arbitrary length. The image data for each of the select number of input image pixels is converted from the first bit depth to the second bit depth.

D3 discloses an apparatus and method for providing compensation bits for post image processing. The compensation bits can be appended to the rightmost bit positions of the current pixel. With the compensation bits, the image bit depth can be increased.

**Article 33(2) PCT - Novelty**

The subject matter of claims 1 to 34 is not disclosed by the available prior art, and thereby satisfies **Article 33(2) PCT**.

**Article 33(3) PCT - Inventive step**

D1, D2 and D3 represent the closest known prior art.

D1 discloses an apparatus for bit-depth increasing digital data with replication bits which replicate the original bits in their original sequence (column 6, lines 1 to 5).

D2 discloses a period bit conversion method and apparatus for digital image processing. The system converts digital image data for a plurality of pixels from a first bit depth to a second bit depth (column 9, lines 10 to 33).

D3 discloses the increase of the image bit depth with compensation bits attached to the right most insignificant bit positions of the original pixel (column 2, lines 20 to 30).

*Continued in Supplemental Box. . .*

**Box No. VIII      Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made :

Claims 1, 33 and 34 are unclear; to construe the adjusting of the color model value by using an equivalent technical term "adjustment" does not provide sufficient information to define the method for converting image data.

Claims 1, 33 and 34 thereby fail to satisfy **Article 6 PCT**.

**Supplemental Box**

In case **the space in any of the preceding boxes is not sufficient.**

Continuation of:           Box V

However, neither D1, D2 or D3 teach or suggest the adjustment of the color model value dependent on a number of pixels between the corresponding pixel and an edge of the saturation region.

Claims 1 to 34 thereby appear to involve an inventive step and satisfy **Article 33(3) PCT.**

**Article 33(4) PCT - Industrial Applicability**

The subject matter of claims 1 through 34 relate to a well established image processing art and thereby fulfills the requirements of **Article 33(4) PCT.**